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PATTI & BRILL ONE NORTH LASALLE STREET 44TH FLOOR CHICAGO, IL 60602			PHILPOTT, JUSTIN M	
			ART UNIT	PAPER NUMBER
			2665	

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/651,717	<b>Applicant(s)</b> BALACHANDRAN ET AL.	
	<b>Examiner</b> Justin M Philpott	<b>Art Unit</b> 2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,6,9-12 and 14-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,6,9-12 and 14-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed September 26, 2004 have been fully considered but they are not persuasive.
2. First, regarding the rejection of claim 1 under 35 U.S.C. 102(b), applicant argues (page 8) that the recitation of "baseband channels" in Lee yields Lee void of a carrier generator generating a plurality of carriers as recited in the amended claim 1. However, applicant has misrepresented the teachings of Lee with this selective recitation. Specifically, Lee teaches "pair band channels" (col. 3, line 8) wherein baseband channels 24 are carried by modulation (col. 3, lines 55-62), wherein modulation occurs by a plurality of carriers with each band, each comprising a sub-frequency carrier corresponding to a sub-channel (col. 3, line 63 – col. 4, line 17). This described modulation occurs within transmitter 22 of control center 12 (FIGS. 1 and 2). Thus, Lee clearly teaches a "carrier generator generating a plurality of carriers within each of the bands" as recited in applicant's claims. Accordingly, applicant's argument is not persuasive.
3. Second, regarding the rejection of claims 6, 9, 15 and 28 under 35 U.S.C. 103(a), applicant argues (pages 8-13) that the combined references do not teach each limitation of applicant's amended claims.

Specifically, regarding claim 6, applicant argues (pages 9-10) that the cited portion of Espax does not disclose control channel messages transmitted in a burst via unidirectional channels. However, Espax recites, "transmitting feedback data ... utilising a variable amount of

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the capacity of said first band of frequencies”, which clearly teaches control channel messages are transmitted (col. 8, line 60 – col. 9, line 5). Such transmissions “received by said first terminal from said second terminal” are also clearly unidirectional (col. 8, line 60 – col. 9, line 5). Further, the transmission is implicitly a burst transmission, in view of the feedback data comprising a “variable amount” corresponding to available capacity (col. 1, lines 35-61). In response to applicant’s request for a disclosure of art which supports this implication, IEEE defines “burst mode” as, “an operational mode in which an end node may send one or more packets each time it is granted permission to transmit” (“IEEE 100: The Authoritative Dictionary of IEEE Standards”, Seventh Edition, IEEE 2000). Such transmission is clearly evident in the teachings of Espax wherein the transmission of feedback data, and the quantity thereof, is based upon granting use of available capacity (col. 8, line 66 – col. 9, line 5; and col. 1, lines 35-61). Accordingly, applicant’s argument is not persuasive.

Additionally, regarding claim 9, applicant argues (pages 10-12) that Goldberg uses the phrasing of transmitting messages only to an “intended subscriber” whereas applicant claims transmitting messages “only to the station”. That is, applicant contemplates that a system according to Goldberg may provide transmissions which could possibly be received by other stations which are not intended stations. However, whether or not an interfering station may potentially be able to receive transmissions, the teachings of Goldberg clearly provide transmitting “only to the station” as recited in applicant’s claim by disclosing that transmissions are intended for transmissions to a specific subscriber. Accordingly, applicant’s argument is not persuasive.

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Further, regarding claim 15, applicant argues (page 12) that Goldberg does not teach a communication session is assigned resources only in the direction that there is data to be transmitted. However, applicant has amended claim 15 to instead recite a “traffic channel” in place of a “communication session”. As a result of the amendment, applicant’s argument is moot in view of the new rejection of claim 15 comprising this different limitation.

Finally, regarding claim 28, applicant argues (pages 12-13) that it would not be obvious to adjust the number of uplink or downlink bands. Specifically, applicant argues that it is a novel invention to adjust the number of either uplink or downlink bands in response to loading conditions on respective bands, and the cited art does not disclose such a responsive operation. However, regardless of whether such a responsive adjustment is or is not specifically be disclosed by the cited art, applicant has not included this limitation in the claims, and thus, this argument is moot. Applicant’s claim 28, rather, simply recites that the number of carriers are initially “different”. As discussed in the previous office action, in response to bands initially comprising a “different number”, it is generally considered to be within the ordinary skill in the art to adjust, vary, select or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Accordingly, applicant’s argument is not persuasive.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,812,522 to Lee et al.

Regarding claim 1, Lee teaches a system comprising a carrier generator (e.g., at control center 12, see FIG. 1) generating a plurality of carriers within each of two bands (e.g., see col. 3, lines 1-12 and 25-30), each of the carriers being in a spaced relationship to the other carriers (e.g., spread spectrum pair-band channels, see col. 3, lines 1-12) such that each band is subdivided into a plurality of sub-bands (e.g., sub-channels, see col. 3, line 63-64) that are equal in number to the plurality of carriers and each of the plurality of sub-bands having a respective carrier of the plurality of carriers (e.g., each carrier modulated with PN code corresponding to PN code of the sub-channel, see col. 3, line 41 – col. 4, line 8), a time multiplexer (e.g., TDM multiplexer 32, see FIG. 2) dividing each of the sub-bands by time-multiplexing into a plurality of frames, the time multiplexer also dividing each frame into N time-slots (e.g., see col. 4, lines 9-17), and a switching device (e.g., TDD multiplexer 48) assigning a series of time-slots that occur periodically, every N time-slots, once per frame, (e.g., at 1/T separations, see col. 3, lines 63-64) to form channels for communication between a central station (e.g., control center 12) and one or more mobile stations (e.g., mobile units 16).

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Regarding claim 15, Lee teaches a traffic channel is assigned resources only in the direction that there is data to be transmitted (e.g., see col. 4, lines 9-13 regarding transmit and receive slots are alternated by multiplexor 48).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of U.S. Patent No. 6,714,514 to Espax et al.

Regarding claim 6, Lee teaches the system discussed above regarding claim 1, however, may not specifically disclose that the communications are unidirectional. Espax also teaches a frequency division duplex system, and further, teaches a method for improving capacity in the system (e.g., see col. 1, line 15 – col. 2, line 20). Specifically, Espax teaches communications are unidirectional (e.g., see col. 8, line 60 – col. 9, line 19). As discussed above, the teachings of Espax provide improved capacity in the system (e.g., see col. 1, line 15 – col. 2, line 20). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the FDD system teachings of Espax to the FDD system of Lee in order to provide improved capacity in the system.

Further, regarding claim 6, this claim was rejected in the previous office action by the Examiner taking official notice that the limitations recited in the claim are well known in the art.

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In Applicant's response to the previous office action, Applicant's traverse of Examiner's assertion of official notice is not adequate. Therefore, in accordance with MPEP 2144.03(C), the limitations recited in these claims comprise well-known art and are hereafter taken to be admitted prior art. Specifically, in response to applicant's request for a disclosure of art which supports the implication that the transmission of Espax is implicitly a burst transmission in view of the feedback data comprising a "variable amount" corresponding to available capacity (col. 1, lines 35-61), IEEE defines "burst mode" as, "an operational mode in which an end node may send one or more packets each time it is granted permission to transmit" ("IEEE 100: The Authoritative Dictionary of IEEE Standards", Seventh Edition, IEEE 2000). Such transmission is clearly evident in the teachings of Espax wherein the transmission, and quantity of, feedback data is based upon granting use of available capacity (col. 8, line 66 – col. 9, line 5; and col. 1, lines 35-61). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to transmit the control messages in the system of Lee in view of Espax in one or more bursts since such transmission is well known in the art of FDD transmission.

Regarding claim 24, Espax teaches continuity of periodic control channels across speech talkspurt and silence periods for conversational voice also carry quality feedback information (e.g., see col. 4, lines 38-55). As discussed above, the teachings of Espax provide improved capacity in the system (e.g., see col. 1, line 15 – col. 2, line 20). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the FDD system teachings of Espax to the FDD system of Lee in order to provide improved capacity in the system.



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Regarding claims 25 and 26, Espax teaches the periodic control channels further carry signal measurement reports (e.g., weights, delays, see col. 2, line 66 – col. 3, line 7) and noise information (e.g., error rate, see col. 5, lines 5-9). As discussed above, the teachings of Espax provide improved capacity in the system (e.g., see col. 1, line 15 – col. 2, line 20). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the FDD system teachings of Espax to the FDD system of Lee in order to provide improved capacity in the system.

8. Claims 10-12, 14, 16-20, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of U.S. Patent No. 6,154,661 to Goldberg.

Regarding claims 10-12, Lee teaches the system discussed above regarding claim 1, however, may not specifically disclose control messages are transmitted only to the station to which the channels are to be assigned. Goldberg also teaches a FDD communication system, and specifically teaches control messages are transmitted only to the station to which the channels are to be assigned (e.g., see col. 6, line 66 – col. 7, line 53, and specifically col. 7, lines 4-5 and 14-25 regarding each intended subscriber unit with a known location). Further, Goldberg teaches the assignment of control channels and carriers are done through control messages (e.g., see col. 23-63). Further, Goldberg teaches the control channels may be utilized as a downlink traffic channel as well as an uplink traffic channel (e.g., see col. 2, lines 59-67). The teachings of Goldberg provide means for accommodating single users per conventional channel as well as multiple users per conventional channel while maintaining a low power (e.g., see col. 5, lines 59-67). Thus, at the time of the invention it would have been obvious to apply

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the teachings of Goldberg to the system of Lee in order to accommodate single users per conventional channel as well as multiple users per conventional channel while maintaining a low power.

Regarding claim 14, Goldberg teaches a traffic channel may be associated with one of a plurality of different protocols (e.g., see col. 9, lines 34-49). As discussed above, the teachings of Goldberg provide means for accommodating single users per conventional channel as well as multiple users per conventional channel while maintaining a low power (e.g., see col. 5, lines 59-67). Thus, at the time of the invention it would have been obvious to apply the teachings of Goldberg to the system of Lee in order to accommodate single users per conventional channel as well as multiple users per conventional channel while maintaining a low power.

Regarding claim 16, Lee teaches the system discussed above regarding claim 15, and Goldberg teaches a traffic channel is assigned resources only when data is to be transmitted (e.g., see col. 10, lines 37-45). As discussed above, the teachings of Goldberg provide means for accommodating single users per conventional channel as well as multiple users per conventional channel while maintaining a low power (e.g., see col. 5, lines 59-67). Thus, at the time of the invention it would have been obvious to apply the teachings of Goldberg to the system of Lee in order to accommodate single users per conventional channel as well as multiple users per conventional channel while maintaining a low power.

Regarding claims 17 and 19, Goldberg teaches slow associated control channels are utilized (e.g., see col. 10, lines 57-63), and further, Goldberg teaches the control channels may be utilized as a downlink traffic channel as well as an uplink traffic channel (e.g., see col. 2, lines 59-67). As discussed above, the teachings of Goldberg provide means for accommodating single

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users per conventional channel as well as multiple users per conventional channel while maintaining a low power (e.g., see col. 5, lines 59-67). Thus, at the time of the invention it would have been obvious to apply the teachings of Goldberg to the system of Lee in order to accommodate single users per conventional channel as well as multiple users per conventional channel while maintaining a low power.

Regarding claims 18 and 20, Goldberg teaches a periodic reserved control channel is assigned to provide the same function as the slow associated control channel during periods when there is no traffic channel assigned (e.g., see col. 10, lines 52-56), and further, Goldberg teaches the control channels may be utilized as a downlink traffic channel as well as an uplink traffic channel (e.g., see col. 2, lines 59-67). As discussed above, the teachings of Goldberg provide means for accommodating single users per conventional channel as well as multiple users per conventional channel while maintaining a low power (e.g., see col. 5, lines 59-67). Thus, at the time of the invention it would have been obvious to apply the teachings of Goldberg to the system of Lee in order to accommodate single users per conventional channel as well as multiple users per conventional channel while maintaining a low power.

Regarding claims 27 and 28, Goldberg teaches several combination of channels are used (e.g., see col. 11, line 65 – col. 12, line 10). As discussed above, the teachings of Goldberg provide means for accommodating single users per conventional channel as well as multiple users per conventional channel while maintaining a low power (e.g., see col. 5, lines 59-67). Thus, at the time of the invention it would have been obvious to apply the teachings of Goldberg to the system of Lee in order to accommodate single users per conventional channel as well as multiple users per conventional channel while maintaining a low power. While Goldberg may

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not specifically disclose uplink and downlink bands are of unequal size or the number of carriers are different between uplink and downlink, it is generally considered to be within the ordinary skill in the art to adjust, vary, select or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on Appellant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to have an unequal number of carriers or bands between uplink and downlink since it is generally considered to be within the ordinary skill in the art to adjust, vary, select or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Espax in view of Goldberg.

Regarding claim 9, Lee teaches the system of claim 1 as discussed above, and further, Lee in view of Espax teaches such a system where traffic is mapped to unidirectional channels as discussed above regarding claim 6 (e.g., see col. 8, line 60 – col. 9, line 19). As also discussed above, the teachings of Espax provide improved capacity in the system (e.g., see col. 1, line 15 – col. 2, line 20). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the FDD system teachings of Espax to the FDD system of Lee in order to

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provide improved capacity in the system. However, Lee in view of Espax may not specifically disclose control messages are transmitted only to the station to which the channels are to be assigned.

Further, regarding claim 9, as discussed above regarding claims 10-12, Goldberg also teaches a FDD communication system, and specifically teaches control messages are transmitted only to the station to which the channels are to be assigned (e.g., see col. 6, line 66 – col. 7, line 53, and specifically col. 7, lines 4-5 and 14-25 regarding each intended subscriber unit with a known location). Further, Goldberg teaches the assignment of control channels and carriers are done through control messages (e.g., see col. 23-63). Further, Goldberg teaches the control channels may be utilized as a downlink traffic channel as well as an uplink traffic channel (e.g., see col. 2, lines 59-67). The teachings of Goldberg provide means for accommodating single users per conventional channel as well as multiple users per conventional channel while maintaining a low power (e.g., see col. 5, lines 59-67). Thus, at the time of the invention it would have been obvious to apply the teachings of Goldberg to the system of Lee in view of Espax in order to accommodate single users per conventional channel as well as multiple users per conventional channel while maintaining a low power.

10. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of U.S. Patent No. 6,729,929 to Sayers et al.

Regarding claim 21, Lee teaches the system discussed above regarding claim 1, however, may not specifically disclose a fast associated control channel that has a higher priority and may pre-empt traffic on the traffic channel. Sayers also teaches an FDD communication system, and

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specifically, teaches a fast associated control channel that has a higher priority and may pre-empt traffic on the traffic channel (e.g., see col. 3, lines 44-58). The teachings of Sayers provide the ability for the system to operate in both public and private networks with high private network data rates (e.g., see col. 8, lines 21-44). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the teachings of Sayers to the system of Lee in order to provide increased functionality by operating in both public and private networks with high private network data rates.

Regarding claims 22 and 23, Lee in view of Sayers teach the system discussed above regarding claim 21, and further, Examiner takes official notice that an FDD system such as that of Lee in view of Sayers implicitly comprises control channel messages transmitted in one or more bursts, and therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to transmit the control messages in the system of Lee in view of Sayers in one or more bursts since such transmission is well known in the art of FDD transmission.

### ***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin M Philpott whose telephone number is 571.272.3162. The examiner can normally be reached on M-F, 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy D Vu can be reached on 571.272.3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Justin M Philpott



ALPUS H. HSU  
PRIMARY EXAMINER